BIOS

Alberta Society of Professional Biologists • September 2001 Volume 16 • Number 3

Tracking North American Industrial Pollution

Taking Stock 1998, a study by the Commission for Environmental Cooperation (CEC), provides a continental perspective on industrial pollution of the air, land and water, on the volume of waste sent for treatment, recycling and disposal, and on trends over time. The report analyzes data on 165 chemical pollutants common to reporting systems for the United States and Canada.

Industrial facilities in North America in 1998 released more than 1.6 million tonnes of chemicals, the weight equivalent of 900,000 minivans. Carcinogens comprise about 15 percent of the total amount released on- and off-site; much of which (84,286 tonnes, or 34 percent) is released to the air. The data collected by the national programs currently do not include all chemicals nor all sources of pollution such as dry cleaners, service stations, cars and trucks. Also not covered (due to differences in the US and Canadian reporting systems) are releases from the metal mining sector. The Mexican government has a bill proposing mandatory reporting which will be sent to the Mexican Congress this fall.

In addition to data on chemical releases and transfers, Taking Stock is a unique source of information on facilities that report the largest reductions, transfers across national borders, changes over time, and analysis of differences between the US and Canadian reporting systems.

Included for the first time in the analysis, electricity producers ranked #1 for on-and off-site pollution releases in 1998, followed by the primary metals sector, the chemical industry and hazardous waste management sectors (another newly-added industry sector). A quarter of the industrial pollution reported in North America was released by electricity utilities, most of it (77 percent) hydrochloric and sulfuric acid emitted into the air.

> "NA industrial facilities released more than 1.6 million tonnes of chemicals in 1998."

Coal and oil burning electricity producers were responsible for over 25 percent of all releases (on- and off-site) -- over 436,000 tonnes of chemicals in all. Some 43 percent of all reported industrial pollution released into the air came from electric utilities.

Five jurisdictions--Ohio, Texas, Pennsylvania, Ontario and Indiana--accounted for over 30 percent of all on- and off-site releases in North America in 1998. Ohio had the largest on-site air emissions, on-site land releases and off-site transfers to recycling. Texas had the largest on-site underground injection. Pennsylvania has the largest on-site surface water discharges. Ontario had the largest off-site releases. Michigan reported the largest off-site transfers to energy recovery. Indiana reported the second-

continued on page 5

IN THIS ISSUE

Tracking Pollutants 1
AGM Speaker 2
Peggy Thompson Awards 3
Bios Bits 4
Tracking Pollutants cont'd 5
Willow Workshop 6
Birdsall Memorial Scholarship 7
ASPB Proceedings for Sale 8

Alberta Society of Professional Biologists
P.O. Box 21104
Edmonton, Alberta
T6R 2V4
Tel: (780) 434-5765
or 1-800-711-5765
Fax: (780) 413-0076
E-mail: pbiol@aspb.ab.ca
http://www.aspb.ab.ca

President
Petr Komers (403) 219-1245
President Elect
Judy Bennett (403) 221-3003
Past President
Garry Hornbeck (403) 281-3782
Secretary
Henry Epp (403) 201-2583
Treasurer
David Ealey (780) 427-1716
Director (Registration)
Doug Collister (403) 240-1635
Director
Maureen Brown (780) 468-3545
Director
Maire Luoma (403) 716-8135
Director
Robert Dallas (403) 735-2245
Director
Paul Kalashnikoff (780) 468-3545
Public Member
Stuart Ross (403) 777-0111
Registrar
Carl Warner (403) 248-4331
Discipline Committee
Brian Bietz (403) 297-4303
Practice Review Committee
Don McCabe (403) 297-5944
Professional Liaison
Rob Powell (780) 422-1977
Awards
David Ealey (780) 427-1716
Professional Development (Calgary)
Judy Bennett (403) 221-3003
Professional Development (Edmonton)
Stacey Schaub-Szabo (780) 450-5360
Communications/Marketing
Terry Antoniuk (403) 266-6363
BIOS Editor
Gavin More (403) 239-4248
Office Administrator
Jill Lane (780) 434-5765

BIOS is written for the enjoyment of the members of the Alberta Society of Professional Biologists and those interested in the field of professional biology. Articles or comments are welcomed and should be communicated to the ASPB Office. Editing and layout by Gavin More, 49 NORTH Creative Learning and Training.

WELCOME NEW MEMBERS

Regular: David Evans

Biologist In Training: Monica Karra, Kyle Davis

Membership Update

ASPB membership as of September 1, 2001: **Total 457**

Regular	366	Biologist in Training	32	Inactive	33
Student	15	Retired	5	Honorary	6

AGM Speaker

A special thank you to AGM 2001 Guest Speaker ~ Brian Keating for providing the wrapup to the AGM 2001 activities.

Brian 's presentation entitled "*A little Sex, a little Adventure, and a bit of Passion*" provided a look at the inner workings of the Zoo and explained why working there is a remarkable experience.

Brian was there, watching and filming, right in the thick of things. By persistence, good planning and plain old dumb luck, Brian happened upon more fascinating sights than he had imagined as he revealed during this humorous, and often profound, highly personal presentation.

As head of the Calgary Zoo's Conservation Outreach Department, Brian, is responsible for external conservation projects and sister zoo relationships, many of the public and media conservation related presentations, and the eco-tour program.

Brian started the zoo's nature-based travel program in 1983, and has provided details of some trips at previous AGMs.

Dave Ealey P.Biol.

Peggy Thompson Awards

Members of ASPB submitted this year a fine collection of nominations for recognition under our three categories of publication awards. Every year it is a privilege to review these publication efforts and to realize the quality of writing and scholarly research that our members produce.

The recipients for this year are Allan H. Legge, Elston Dzus and Calvin B. Sikstrom.

Dr. Legge is recognized for his contribution [Sulfur Dioxide chapter] to the publication *Recognition of Air Pollution Injury to Vegetation, A Pictorial Atlas*. Second edition, Air and Waste Management Association. His publication was nominated under the category of a refereed, published scientific paper. Allan's comprehensive description and well-illustrated chapter shows the symptomatology of sulfur dioxide injury upon a number of plants, is well-referenced, and provides indications of how to confirm whether sulfur dioxide is the cause or not of any particular foliar injury. Allan was able to attend the Annual General Meeting in April and was presented with his "new look" Publication Award (*photo below*).

Dr. Elston Dzus is the author of *Status of the Woodland Caribou (Rangifer tarandus caribou) in Alberta*, which is recognized under the category of an unpublished, biological technical report. This document was produced for Alberta Environment and Alberta Conservation Association and provides a detailed, up-to-date summary of population trend, distribution, limiting factors, and management considerations for the woodland caribou in Alberta.

Mr. Calvin Sikstrom wrote a series of articles as the "*Lone Angler*" for the Cold Lake Sun newspaper. His writing fulfills the category of a publication communicating biological information to the general public admirably. His light, almost folksy writing style accompanies solid biological content, which together create a charming story for each article from which the public can learn and appreciate the biological world.

I also acknowledge the other members whose publications were nominated. The calibre of written products by members is very high and they all deserve to be recognized. Other nominations were for Gail Harrison, Garry Hornbeck, John Mahoney, Chris Powter, Nicola Ross, and Jay White. Thanks to all for their submissions.

Finally, other members of the Awards Committee helped review the publications; thanks to Gerry Haekel and Stacey Schaub-Szabo.

Dave Ealey P. Biol.

Bios Bits

Foothills Model Forest Grizzly Bear Research Project

The Foothills Model Forest Grizzly Bear Research Project third year of research is underway. The data collected are already contributing to improved land and resource management activities. It is evident that this study plays an important role in supporting sustainable development in west-central Alberta.

The annual report and the fact sheet are available on the Model Forest's web site at www.ptac.org/techenvp.html under Ecological Health.

For further info contact Mark Storie, General Manager at 780-865-8332 or Gord Stenhouse at 780-865-8388.

Canadian Climate Impacts and Adaptation Network

A forest research node has been established for the Canadian Climate Impacts and Adaptation Network (C-CIARN). Hosted by the Canadian Forest Service at the Northern Forestry Centre in Edmonton, the node office has been in operation since August 2001. This node is part of a larger national research network dedicated to climate impact and adaptation research.

Adam Wellstead is the C-CIARN forest node coordinator. His duties include providing a point of contact and up-to-date information resources on climate impacts and adaptation research and management for stakeholders interested in climate change issues related to the forest sector.

Adam is developing a contact list of forest node members and other key individuals with wide-ranging expertise on various issues related to climate change impacts and adaptation in the Canadian and Alberta forest sector. He will facilitate and assist in the coordination of the development and submission of impacts and adaptation oriented research proposals to a number of different funding agencies. Meetings and workshops of key researchers and stakeholders will be announced in the near future.

A C-CIARN forest website (http://forest.c-ciarn.ca) includes current forest related impact and adaptation research already underway, funding opportunities, upcoming events and conferences, and informative links. The national site can be found at (http://c-ciarn.ca).

For info contact Adam Wellstead, Natural Resource Social Scientist & Acting C-CIARN Forest Node Coordinator at (780) 435-7390 or awellste@nrcan.gc.ca.

Forem Technologies Website

Forem Technologies currently has an enhanced website accessible at www.foremtech.com (also reachable via www.foremtech.ca). A large portion of this site is dedicated to ALCES, so we encourage you all to take a look.

BC Logging Submission

The Secretariat of North America's Commission for Environmental Cooperation (CEC) has recommended to the CEC Council that a factual record be developed in response to allegations that Canada is failing to effectively enforce its Fisheries Act in regard to logging in British Columbia.

The allegations were made in a citizen submission on 15 March 2000 by the David Suzuki Foundation, Greenpeace Canada, Sierra Club of British Columbia, Northwest Ecosystem Alliance and National Resources Defence Council.

The submission alleges that Canada is systematically failing to effectively enforce sections 35 and 36 of the Fisheries Act in connection with logging operations on both public and private lands throughout British Columbia. The Submitters claim that the federal government relies too heavily on British Columbia's forestry regulations which, according to the Submitters, allow logging practices that harm fish and fish habitat and deposit harmful sediment in fish-bearing waters, and that these practice result in many Fisheries Act violations that Canada is failing to address effectively. Documentation submitted to support the submission included letters indicating that Fisheries and Oceans Canada has scaled back its review of forest development plans in light of provincial forestry regulations, despite concern among Fisheries and Oceans Canada staff that the stream protections in those regulations are inadequate to protect fish. The submission cites TimberWest's logging operations in the Sooke watershed as a specific example of ineffective enforcement.

On 6 July 2000, Canada filed a response to the submission, claiming that it has taken appropriate action regarding the specific examples described in the submission and that a factual record is not warranted.

The Secretariat concluded that a factual record is warranted to address several questions raised in the submission that the Canadian response left unanswered, including questions in regard to Canada's reliance on provincial forestry regulations to ensure compliance with the Fisheries Act.

The CEC Secretariat informed the Council of its determination that a factual record is warranted on 27 July 2001 and has provided public notification of the determination and placed the rationale for the determination in the public registry.

The full text of the submission, Canada's response and the Secretariat's factual record recommendation are available on the CEC web site at http://www.cec.org/citizen.

Tracking Pollutants cont'd

Pollutant Tracking

Highlights for 1998

- Total releases and transfers of pollutants from North American industrial facilities dropped 2 percent overall from 1995 to 1998. After an increase from 1996 to 1997, the analysis showed a decrease of 3 percent from 1997 to 1998.
- The combined total of releases and transfers of chemical pollution in 1998 was over 3.2 million tonnes. Of this total, about a quarter (854,000 tonnes) was released into the air and another quarter (783,200 tonnes) released to water and land. Some 9 percent of total releases and transfers came from Canadian sources while 91 percent came from US facilities.
- Almost 1 million tonnes of chemicals were sent off-site for recycling, compared with over 1.6 million tonnes released.
- Most chemicals sent off-site for recycling or other management went to sites within national boundaries. However, Canada exported 32,000 tonnes to the United States while American industries sent 39,000 tonnes to sites in Canada.
- Almost one third of all releases are metals and their compounds, most of which wind up in landfills at the industrial facility site or off-site.
- Just 50 facilities (0.2 percent of the total number of facilities) release almost 30 percent of the total on-site releases in North America. Of the 50 facilities, 27 are electric utilities and eight are hazardous waste facilities.

largest off-site transfers to recycling.

This year, the report covers over 3.2 million tonnes of chemicals released and transferred in North America in 1998, more than twice the size of the matched data set available for analysis on a continent-wide basis for 1997 (1.3 million tonnes). It also analyzes changes from 1997 to 1998 and over a four-year span, 1995-98. Over those four years, the report shows, there has been an overall decrease in the quantities of substances released on- and off-site (a drop of over 49,000 tonnes, or 4 percent), a 35-percent increase in off-site releases (59,000 tonnes) and an 11-percent increase in off-site transfers to treatment or sewage treatment plants (20,300 tonnes).

Removing the newly added industry sectors from consideration (as the matched data set contains no historical data for them), North American on- and off-site releases of pollution were 4 percent lower in 1998 compared with 1995 levels. These releases dropped 3 percent in 1998 alone, compared with 1997 levels. The analysis also shows a continuing trend among businesses to release less pollution directly from industrial sites. On-site releases in 1998 were 12 percent lower than in 1995.

Meanwhile, a strong trend among industries in recent years towards sending pollution off-site for disposal elsewhere may have peaked. Off-site releases rose dramatically from 1995 to 1997 (up 41 percent) then dropped in 1998 (down 4 percent).

Taking Stock 1998 has been prepared in a new two-volume format, featuring a summary volume and a sourcebook that provides more detailed data tabulations and analyses. Another new feature of the program is a special Taking Stock web site, to enable customized queries of the matched North American data set. The URL for the new site is http://takingstock.cec.org or link from the CEC site http://www.cec.org. Users of the new site can, for example, compare pollution levels in their state or province with those of any other jurisdiction in North America, see changes that have occurred in pollution levels over time, or obtain the North American ranking of major industrial facilities on such measures as releases or recycling. The web site allows citizens to see local data of interest within the larger North American context.

Source: Press Release 20 July 2001 – CEC

Henderson's Dictionary of Biological Terms 12th Edition

This classic dictionary has been updated, rewritten for clarity and reorganised to make it easier to use. Its over 23,000 entries includes:

- comprehensive coverage of all major fields in biology
- acronyms and abbreviations
- new terms that have come into use since the 1995 edition, e.g. aptamer, archaeon, DNA vaccine, genomics, proteomics, quasi-species, xenotransplantation
- improved coverage of ecology and updated classification tables
- extra diagrams and chemical formula incorporated in the main text
- appendices include: outlines of the Plant and Animal Kingdoms; Fungi; Protoctista; Domain Bacteria; Domain Archaea; Virus Families; and
- Etymological Origins of Some Common Word Elements

Willow Workshop

Eighteen willow enthusiasts from Alberta, Saskatchewan and British Columbia met at the Warden station in Jasper National Park, on July 13-15, 2001, to attend a workshop on the identification of this troublesome group. The workshop, led by Dr. George Argus, an internationally recog-

nized expert in this taxon, had both lab and field components and offered a chance to learn from a master, in a beautiful setting. Dr. Argus provided specimens of approximately 15 willow species, all from the Jasper area, for participants to examine in a lab using a "Guide to the Identification of Willows in Alberta" (a booklet comprising conventional keys, descriptions and distribution maps) and INTKEY, a most impressive, digital, interactive key. INTKEY, recently modified by Dr. Argus to target willows using an extensive willow database developed from a lifetime of work, allows one to identify willow taxa based on characters at hand, even only vegetative ones. The key includes numerous characters each with many states or conditions and by simply choosing characters and their conditions, one can whittle down the potential options until an identification is made. No more flipping back and forth in keys guessing at potential characters that aren't shown on the specimen in hand.

Field trips to the Snaring Wetlands, the floodplain of the Snaring and Athabasca Rivers, and Mt. Edith Cavell provided the opportunity to attempt field identification and aptly balanced the lab time. While the workshop confirmed that willows are a complex and variable group, such that even the experts are puzzled on occasion, it also provided able tools to overcome the challenges and allay the fear of tackling identification of Alberta's willows.

Sponsors of the workshop included the Edmonton Professional Development Committee of the ASPB, Parks Canada and the Parks and Protected Areas Division, Alberta Community Development. The workshop was one of a series of plant courses offered by the Prairie and Northern Plant Diversity Centre, Devonian Botanic Garden, U of A. If there is sufficient interest, a second willow workshop can be held.

If you are interested in attending a willow workshop, please contact Joyce Gould, Dept. of Renewable Resources, ESB 442, University of Alberta, Edmonton, AB T6G 2R3, 780-492-4155, ajgould@ualberta.ca.

Lynn Maslen and Joyce Gould

Birdsall Memorial Scholarship

The 2001 Birdsall Memorial Scholarship award recipient is Nicholas Jones of the Department of Biological Sciences, University of Alberta.

August 29, 2001

Mrs Birdsall,

I greatly appreciate the financial help provided through the D Allan Birdsall Memorial Scholarship. This scholarship will allow me to focus on my studies over the next year. It is a generous amount. Thank you.

Allow me to tell you about myself a bit more. I started my post-secondary schooling at Sir Sandford Fleming College where I complete a three year diploma in Fish & Wildlife Ecology. Upon graduation I decided to continue my studies at the University of Guelph, in Pure and Applied Ecology. During this time my interests in salmonid ecology, particularly in running waters, grew. In 1998 I met with my current supervisor, Bill Tonn, at a fisheries conference in Kingston, Ontario. Five months later I came to Alberta and started a field season at Canada's first diamond mine (BHP Diamonds) in the Northwest Territories.

My thesis work involves assessing the "effectiveness" of a 3.5-km diversion channel in providing productive fish habitat, with particular focus on Arctic grayling, and incorporates a mix of both applied and basic research. Aspects of my research range from examining the food habits of grayling and their preferred habitats to bioenergetic modelling and habitat enhancement. My work also provides a unique interdisciplinary experience by linking fisheries biology with hydraulic science. More generally it will contribute to our understanding of freshwater systems in the Canadian north. An understanding that is much needed as development of our natural resources continues to expand in this environmentally challenged region.

I truly enjoy my studies and plan to continue working in fisheries research upon graduation, hopefully in Canada's north or British Columbia. These two regions have a multitude of lake and river systems which harbour many species of salmonids. These regions also have some of the greatest problems in terms of habitat loss stemming from industrial activities. I believe that my background in fisheries and restoration ecology would help here.

Once again, thank you for awarding the scholarship to me.

Sincerely,

Nicholas E. Jones

Columbia Mountains Institute

Workshops

Non-Invasive DNA Hair Sampling:
Uses and Field Techniques
October 2, 2001

Creating Bear Aware Communities
November 16-17, 2001

Revelstoke BC

To Register: www.cmiae.org

Edmonton Seminar Series

It's that time again where the summer blues hit us and we realize the fall rat race is just about...((smack))... its here! The EPDC has a terrific line-up of seminar topics this year. There was even discussion about a social night! Thanks to everyone who contributed.

It's been a challenge confirming dates and getting a hold of presenters due to holidays, fieldwork and busy schedules. But I haven't given up yet!

Here's a look at a few of the seminar topics we're working on:

- Environmental Goods & Services Through Economically Driven Land Stewardship (September 25th by Gordon Kerr)
- Using Rare Plants as a Tool for EIA's
- Tips, Tricks, and Techniques for Wildlife Monitoring
- Recovery of Collapsed Fish Populations
- The Ecological Monitoring and Assessment Network
- The Central Rockies Wolf Project
- Wetland Policy
- Arctic Wildlife

The EPDC will be working with the Edmonton Zoo, AIA, CLRA, and other associations to increase our attendance at these events.

I encourage you to keep an eye out on the ASBP website which I want to make better use of this year. As always, e-mail will be the main mode for communication.

Any one up for darts, bowling... send your suggestions to szabo@arc.ab.ca.

Cheers,

Stacey Schaub-Szabo P. Biol.

ASPB Proceedings For Sale

The ASPB has held many highly successful symposiums since 1977. The Board of Directors recently approved the sale of all proceedings for the bargain price of $5 per copy plus shipping and handling. Copies are limited so contact Jill at the ASPB office asap.

1977 Environmental Impact Assessment (7)

1978 Biology, Science, Policy and Public (8)

1979 Biology Issues in Energy Development (9)

1980 Environmental Management Strategies Past, Present & Future (26)

1981 Biological and Social Issues in Water Management (2)

1984 Environmental Mitigation: Solutions & Problems (40)

1985 Fish and Wildlife Management in Alberta Current Practices (7)

1986 Native People and Renewable Resources Management (31)

1987 Reclamation Targets for the 1990's (6)

1988 Seeking Consensus-the Public's Role In Environmental Decision Making (13)

1990 The Greening of the 1990's - Solutions To Emerging Environmental Concerns (59)

1993 Alberta Cumulative Effects Workshop (23)

1994 Cumulative Effects Assessment in Canada (63)

Mackenzie Delta Strategies

Prepare for Your Field Season in the Delta

Mackenzie Delta Oil & Gas Development Strategies

Move forward with your pipeline and other oil and gas projects in the Inuvialuit Settlement Region, and other regions in the Northwest Territories, by developing effective planning, regulatory and operating strategies.

A TWO DAY CONFERENCE
OCTOBER 16-17, 2001

TELUS CONVENTION CENTRE, CALGARY, ALBERTA
Plus! Post-Conference Workshop • October 18, 2001

CENTRUM INFORMATION
304, 919 Centre Street NW
Calgary, AB T2E 2P6
TOLL FREE PHONE: 1-800-308-1051
TOLL FREE FAX: 1-800-308-1091
E-MAIL: registration@centruminformation.com
WEB: www.centruminformation.com